Attachment 11

Preventative and Treatment Procedures

A6.F.8 Prevent Accidental Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes

[R 299.9504(1)(c), 299.9508(1)(b) and 40 CFR §270.14(b)(9)]

These procedures describe the precautions taken by EQRR to prevent accidental ignition or reaction of ignitable, reactive or incompatible wastes as required by 40 CFR 270.14(b)(9) and demonstrates compliance with 40CFR 264.17, and Michigan R299.9605 including documentation demonstrating compliance with 40 CFR 264.17(c).

RCRA Reactive Wastes (F003) are not currently permitted by the EQRR Operating License. EQRR does not intend to propose the storage or handling of RCRA Reactive Waste at its facility.

EQ Resource Recovery will implement the following engineering and procedural controls to prevent recurrence of the fire that occurred on July 9, 2005. The preventative measures will include:

a) Building to NFPA code. 2006 NFPA standards include substantial improvements over those of three and four decades past. Examples include increased tank spacing, limitations of storage volume per containment area, thermally fused valve shut-offs at loading areas, etc. The business model for a rebuilt EQRR includes a reduction in the business emphasis on fuels blending, that activity in which the fire occurred. The focus of the rebuilt plant and business will be on solvent recycling with limited fuels blending.

b) The container management building and the solvent recycling building are fitted with a foam based fire suppression systems.

c) Low profile perimeter walls on the waste solvent and product storage tank farm.

d) The pH of materials blended will be restricted to a pH less than 11 and greater than 3. It is believed that the reaction that caused the fire probably could not have occurred at a pH below 11.

e) In the event a customer identifies the presence of metal fines in a waste stream during the pre-approval process, EQRR will require speciation and concentration data for the metallic constituents.

Protection from Sources of Ignition

The container and storage tank areas are the only areas on the facility property where ignitable wastes are stored. The containers and tanks are compatible with the contained wastes; therefore, the only source of ignition is external to the containers and tanks. To prevent a

possible source of external ignition, the total operating portion of the facility is designated as "NO Smoking". The only area that smoking is allowed at the facility is immediately behind the administrative building. The remainder of the facility is clearly marked with the legends "No Smoking" and "Flammable Liquids". Explosion-proof electrical equipment and spark proof tools are used in areas where ignitable materials are managed. Hot work permits are required and used throughout the facility.

Precautions taken in the container storage area to prevent accidental fire and explosion include the proper storage of the containers, dikes, sump areas, explosion-proof electrical equipment, grounding and bonding where applicable, and appropriate warning signs. Prior to storage, each container is sealed and labeled. These procedures prevent the release of vapors from the containers and identify the contents of the container and the date wastes were generated. The container storage area is located 110 feet from the company property line, which is in compliance with the National Fire Code Standards for storage of containers holding ignitable waste.

Precautions taken in the tank storage areas to prevent accidental fire and explosion include the use of explosion-proof electrical equipment, dikes, sump areas, grounding, combination pressure/vacuum vents with flame arresters, emergency pressure relief vents, and warning signs. The tank storage area is located 50 feet from the nearest company property line, which is in compliance with the National Fire Code Standards for stable liquids contained in storage tanks.

Prevention of Sources of Reaction

Many of the waste streams handled by EQRR are compatible. However, some of the permitted waste codes may be deemed incompatible according to USEPA guidance (A Method for Determining the Compatibility of Hazardous Waste, EPA-600 2-80-076, April 1980). EQRR will assume based on this guidance that the following waste codes are incompatible with other waste streams unless there is knowledge to demonstrate otherwise. Demonstrated knowledge will include determination by the above mentioned guidance document, receipt of the waste that is already commingled, or testing of the waste stream. Testing of the waste stream will be conducted according to methods identified in Appendix A-3.B and will be documented in the material profile file.

Waste Codes that are deemed to be incompatible include:

D002	D005	D007	D010	D037	D038	D041	D042	D043
F006	F006	K022	K060	K086	K087	U008	U110	U112
U113	U118	U162	U188	U196				

Segregation of these wastes streams will include, but is not limited to:

1. Physical Separation
2. Isolation of the waste with a portable dike, berm, or spill control pallet
3. Not placed in a tank or pipe system that previously held an incompatible waste unless the tank was washed and cleaned of incompatible residues.

Each hazardous waste stream that is to be considered for commingling will be screened for waste compatibility with any other waste or waste residue that remains in a container or storage tank. The purpose of this screening process is to ensure that combining the waste streams will not result in an adverse reaction. Incompatible wastes will not be commingled at EQRR.

SECTION C-4
TREATMENT INFORMATION

INTRODUCTION

This section provides information on the method and process of treatment conducted at EQ Resource Recovery, Inc. (EQRR) as required by R299.9504 (5). The process of recovery and reclamation is not permitted as a treatment process, information regarding thin-film evaporation and factional distillation have been included in this section for informational purposes only.

PROCESSING METHODS

EQRR uses thin-film evaporation and/or fractional distillation techniques to recover solvents and solvent blends from hazardous waste solvent streams. Additionally, waste residuals from the reclaim process and other hazardous wastes are used in Fuel Blending to produce hazardous waste derived fuels for energy recovery. Recovered solvent products are returned to the market for re-use. Process flow diagrams can be found on B-06 Engineering Plans as P&ID 00 through P&ID 41.

Thin-film Evaporation

The processing of waste solvents for recovery is accomplished at the facility using thin-film evaporation techniques. EQRR has three thin film evaporators, one of which is currently operational. The evaporators have a simple operating concept. Feedstocks to be processed are pumped to the feed inlet of the evaporator that is located directly above the thermal section. The feedstock is distributed over the total internal circumference of the evaporator by means of a feed distribution ring, an integral part of the close clearance rotor inside the evaporator. The uniformly established film of feedstock is released from the distribution ring to the thermal wall via gravity. The material is kept highly turbulent on the thermal wall by the agitator blades on the rotor as it rapidly progresses downward over the thermal surface.

Heat is transferred from the heating jacket section through the thermal wall and into the material. Heat transfer and vaporization take place under the favorable conditions of high heat flux and a controlled film thickness, thus protecting the material on the thermal wall from overheating. Solvent vapors generated travel inward and upward, being separated from the feedstock at the inlet by the feed distribution ring. These vapors then pass through the dual action entrainment separator, above the feed inlet, where any entrained droplets are recovered and drained back to the process area.

The viscous residue exits at the bottom of the unit. This material is kept fluid in the case of low residue flow rates by the use of a residence time control ring located at the bottom of the evaporator. This ring acts to create a controlled thickness layer of concentrated material at the bottom of the unit, which benefits the operation in two ways. First, the residue film at the bottom of the unit is kept uniform but constantly agitated. This thick film prevents surface starving and over-concentration with degradation on the thermal surface.

Secondly, residence time is increased. As a result, the product fluid is exposed to the turbulence and heating zone for an extended period with a resultant increase in solvent removal from the residue. Distilled solvent vapors leave the evaporator and pass through an external separator. A vertical condenser then

condenses the solvent (distillate/product) and is pumped into storage. The bottom material is pumped away from the evaporator. This residue is pumped to storage and blended as a hazardous waste derived fuel. Figure J-3 shows a schematic drawing of a typical Luwa Solvent Recovery System.

Fractional Distillation
Fractional distillation is principally used to improve the quality of recovered solvent products and can also be used to remove low-level contaminants from high purity solvent waste streams for solvent recovery. After thin film evaporation, feedstock is pumped into the Re-boiler. The reboiler uses a thermal oil heat exchanger to heat the feedstock to its boiling point (150-340°F). The heated materials migrate up the column and the distillate (product) is collected based on its boiling point. Enhanced products are collected and pumped into storage. Any materials remaining in the reboiler are processed through fuel blending as hazardous waste derived fuels.

Fuel Blending
Wastes used in fuel blending are identified in Section A-2 of this application. The approved waste streams are pumped into one of the fuel blending tanks with other compatible waste streams. Positive Displacement pumps with up to 300 gallon per minute capability pump the waste from tanker trucks to the fuel blending tanks. Blending is accomplished by means of a mixer mounted on top of the tanks. The mixer and tank are designed to provide proper agitation to the waste streams and to produce a homogenous hazardous waste derived fuel suitable for use in cement kilns and other similarly designed industrial furnaces and incinerators. After blending, the fuel is evaluated to ensure it meets the specifications for the selected facility for thermal destruction. Specifications include BTU value, chlorides, heavy metal content, and water content. The mixers are also used prior to transferring material to a tank truck, ensuring that the material is still suitably blended.

Onsite laboratory personnel screen the waste designated for fuel blending per the waste analysis plan to ensure that the acceptance criterion for energy recovery is met. Bench tests are often conducted on large quantity waste streams to evaluate their energy recovery qualities.

REMOVAL OF WASTE FROM CONTAINERS

Recoverable waste that is received in containers is pumped from the container to a waste holding tank prior to thin film processing. Procedures used to remove this waste from the containers can include: removing the top of the drum, using solvent as a thinning agent, agitation of the material in the drum, and blending with a small mixer, or re-circulating the liquids with a pump. Waste removal from containers is performed in the container management building.

Non-soluble items removed from the containers such as gloves, rags, etc., are consolidated into containers in the container storage area for accumulation and are shipped off site for treatment, incineration or disposed at facilities permitted to handle waste.

Treatment

All wastes are sampled in accordance with EQRR's Waste Analysis Plan. Each waste stream is fingerprinted to ensure the material will not interfere with treatment processes. EQRR does not accept reactive wastes.